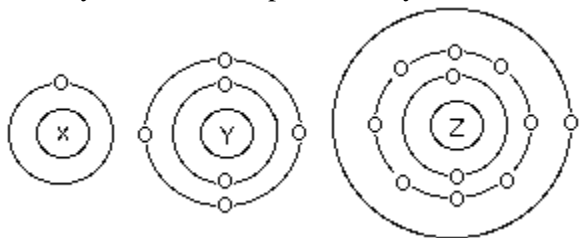


# Chemistry Review

## Short Answer

1. Identify the element represented by each of the following Bohr diagrams.



2. Lithium and oxygen react to form a compound.
- Draw Bohr diagrams of lithium and oxygen.
  - Which is the metal and which is the nonmetal?
  - Sketch Bohr diagrams showing the electron movement that occurs when lithium and oxygen react. More than one atom of each element may be necessary.
  - What are the charges on the lithium and oxygen ions?
  - Give the chemical formula and the chemical name of the compound formed.
3. a. Select a halogen and sketch its Bohr diagram.  
b. Sketch the stable ion this halogen forms and indicate its electric charge.  
c. Give the name of this ion.
4. a. Select an alkaline earth metal and sketch its Bohr diagram.  
b. Sketch the stable ion this halogen forms and indicate its electric charge.

5. Give the compound name or formula as required.

$K_2S$	_____	$AlBr_3$	_____
$Ag_2O$	_____	$ZnF_2$	_____
sodium oxide	_____	calcium nitride	_____
lithium iodide	_____	potassium phosphide	_____
beryllium chloride	_____	magnesium hydride	_____

6. Give the compound name or formula as required.

$CaCl_2$	_____	$Sr_3P_2$	_____
$BaI_2$	_____	$Na_3N$	_____
hydrogen chloride	_____	potassium oxide	_____
aluminum nitride	_____	sodium fluoride	_____
zinc sulfide	_____	potassium bromide	_____

7. Give the compound name or formula as required.

$PbI_2$	_____	$SnF_4$	_____
$Fe_2O_3$	_____	$Cu_2S$	_____
iron(II) bromide	_____	tin(II) phosphide	_____
copper(I) nitride	_____	lead(IV) oxide	_____

8. Give the compound name or formula as required.

AgNO <sub>3</sub>	_____	Pb(ClO <sub>3</sub> ) <sub>2</sub>	_____
CaSO <sub>4</sub>	_____	K <sub>3</sub> PO <sub>4</sub>	_____
magnesium carbonate	_____	calcium hydrogen carbonate	_____
copper(II) sulfate	_____	iron(II) hydroxide	_____

9. Give the compound name or formula as required.

Na <sub>2</sub> CO <sub>3</sub>	_____	Sn(NO <sub>3</sub> ) <sub>2</sub>	_____
Cu(OH) <sub>2</sub>	_____	Al(HCO <sub>3</sub> ) <sub>3</sub>	_____
zinc chlorate	_____	calcium phosphate	_____
potassium sulfate	_____	lead(IV) carbonate	_____

10. Give the compound name or formula as required.

SO <sub>2</sub>	_____	CF <sub>4</sub>	_____
NBr <sub>3</sub>	_____	CS <sub>2</sub>	_____
carbon dioxide	_____	nitrogen phosphide	_____
silicon tetrabromide	_____	chlorine oxide	_____

11. One component of the haze found over industrial areas is ammonium sulfate. It occurs when ammonia and sulfuric acid are present in the air. Write out the word equation for this reaction.

12. Complete the following word equations.

- copper + silver nitrate → \_\_\_\_\_ + copper(II) nitrate
- iron + \_\_\_\_\_ → iron(III) oxide
- lead nitrate + \_\_\_\_\_ → lead iodide + potassium nitrate

13. Balance the following equation:  $\text{PbS} + \text{O}_2 \rightarrow \text{PbO} + \text{SO}_2$

14. Balance the following equation:  $\text{Cu} + \text{H}_2\text{SO}_4 \rightarrow \text{CuSO}_4 + \text{H}_2\text{O} + \text{SO}_2$

15. Balance the following equation:  $\text{Al}_4\text{C}_3 + \text{H}_2\text{O} \rightarrow \text{Al}(\text{OH})_3 + \text{CH}_4$

16. When sugar, C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>, is strongly heated, water is driven off and the element carbon is left (something similar occurs when toast burns).

- Write out a balanced chemical reaction for strongly heating sugar.
- Classify the reaction type.

17. Balance and classify each of the following as either a synthesis or a decomposition reaction.

- $\text{HgO} \rightarrow \text{Hg} + \text{O}_2$
- $\text{Al} + \text{O}_2 \rightarrow \text{Al}_2\text{O}_3$
- $\text{SO}_3 + \text{H}_2\text{O} \rightarrow \text{H}_2\text{SO}_4$

18. Write out balanced chemical equations for each of the following reactions and classify the reaction type.

- Sodium and oxygen react to form sodium oxide.
- Silver oxide when heated produces oxygen and silver.
- Magnesium carbonate when heated produces magnesium oxide and carbon dioxide.
- Bromine reacts with aluminum to form aluminum bromide.

19. Classify each of the following reactions.

- $\text{Cu} + 2 \text{AgNO}_3 \rightarrow 2 \text{Ag} + \text{Cu}(\text{NO}_3)_2$
- $(\text{NH}_4)_2\text{SO}_4 + \text{CaCl}_2 \rightarrow \text{CaSO}_4 + 2 \text{NH}_4\text{Cl}$
- $\text{ZnI}_2 + \text{Cl}_2 \rightarrow \text{I}_2 + \text{ZnCl}_2$
- $\text{Na}_2\text{S} + \text{Pb}(\text{NO}_3)_2 \rightarrow 2 \text{NaNO}_3 + \text{PbS}$

20. a. Complete the following equation and balance it.  $\text{Bi}_2\text{O}_3 + \text{H}_2 \rightarrow$

- Classify the reaction type.